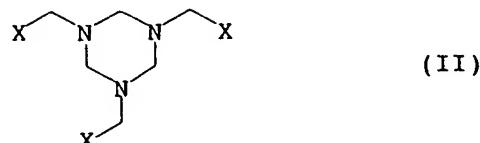


We claim:

1. A process for the preparation of N-phosphonomethylglycine,
5 wherein

a) a hexahydrotriazine derivative of the formula II

10



15

in which X is CN, COOZ, CONR¹R² or CH₂OY,

Y is H or a radical which is readily exchangable for H,

20 Z is H, an alkali metal, alkaline earth metal, C₁-C₁₈-alkyl or aryl, which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl,

25 R¹ and R² can be identical or different and are H or C₁-C₄-alkyl,

is reacted with a triacyl phosphite of the formula III



30

in which the radicals R³, which can be identical or different, are C₁-C₁₈-alkyl or aryl which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl,

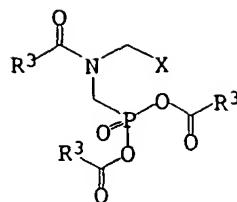
35 and

b) the product obtained is hydrolyzed, and, if X is CH₂OY, oxidized.

40 2. A process as claimed in claim 1, wherein reaction of the hexahydrotriazine derivative of the formula II with the triacyl phosphite of the formula III gives a compound of the formula I

18

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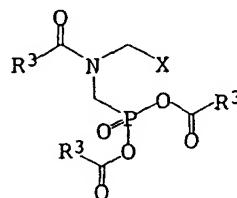


(I)

in which R³ and X have the meanings stated in claim 1.

10 3. A process for the preparation of a phosphono compound of the formula I

15



(I)

20 in which the radicals R³, which can be identical or different, are C₁-C₁₈-alkyl or aryl which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl, and

25 X us CN, COOZ, CONR¹R² or CH₂OY,

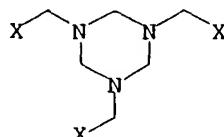
Y is H or a radical which is readily exchangeable for H;

30 Z is H, an alkali metal, alkaline earth metal, C₁-C₁₈-alkyl or aryl, which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl;

35

R¹ and R², which can be identical or different, are H or C₁-C₄-alkyl, in which a hexahydrotriazine derivative of the formula II

35



(II)

40

is reacted with a triacyl phosphite of the formula III



45

in which R³ and X are as defined above.

4. A process as claimed in any of the preceding claims, wherein X is CN or COOZ.
5. A process as claimed in any of the preceding claims, wherein R³ is phenyl which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl, or is CH₃.
6. A process as claimed in any of the preceding claims, wherein step (a) is carried out in an organic solvent.

10

7. A process as claimed in claim 6, wherein the solvent used is dioxane or tetrahydrofuran.
8. A process as claimed in claim 6, wherein a chlorinated 15 organic solvent is used.
9. A process as claimed in claim 8, wherein 1,2-dichloroethane is used as solvent.

20 10. A process as claimed in any of the preceding claims, wherein the compounds of the formulae II and III are employed in essentially equivalent amounts.

11. A process as claimed in any of the preceding claims, wherein 25 the compound of the formula III is prepared by reacting a carboxylic acid of the formula IV

R³COOH (IV),

30 in which R³ has the meanings stated in claim 1 or a salt thereof with a phosphorus trihalide.

12. A process as claimed in claim 11, wherein an alkali metal salt or the ammonium salt of the carboxylic acid of the 35 formula IV is reacted with the phosphorus halide.

13. A process as claimed in claim 11, wherein the carboxylic acid of the formula IV is reacted with the phosphorus halide in the presence of an amine.

40

14. A process as claimed in claim 11, wherein the carboxylic acid of the formula IV is reacted with the phosphorus halide in the absence of a base.

15. A process as claimed in any of claims 11 to 14, wherein the reaction is carried out in an inert organic solvent which is selected from among the aromatic or aliphatic hydrocarbons and chlorinated hydrocarbons.

5

16. A process as claimed in claim 15, wherein the solvent is recovered after the reaction and recycled.

17. A process as claimed in any of claims 1, 2 or 4 to 9, wherein 10 the compound of the formula I is hydrolyzed with an aqueous acid.

18. A process as claimed in claim 17, wherein the hydrolysis is carried out in a two-phase system.

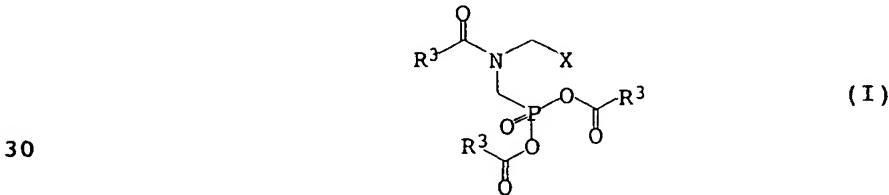
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19. A process as claimed in claim 18, wherein the phosphono-methylglycine is precipitated from the aqueous phase by bringing the pH to a value of in the range of 0.5 to 2.0.

20 20. A process as claimed in claim 19, wherein the phosphono-methylglycine is precipitated in the presence of a solvent which is miscible with water.

21. A phosphono compound of the formula I

25



35 in which the radicals R³, which can be identical or different, are C₁-C₁₈-alkyl or aryl which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl, and

X is CN, COOZ, CONR¹R² or CH₂OY,

40 Y is H or a radical which is readily exchangeable for H;

Z is H, an alkali metal, alkaline earth metal, C₁-C₁₈-alkyl or aryl, which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl;

45 R¹ and R², which can be identical or different, are H or C₁-C₄-alkyl, or a salt thereof.

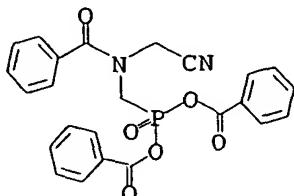
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22. A compound as claimed in claim 21, wherein R³ is phenyl which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl, or is methyl.

5 23. A compound as claimed in claim 21 or 22, wherein X is CN or COOZ, wherein Z is H, alkali metal or C₁-C₁₈-alkyl.

24. A compound as claimed in claim 21 of the formula

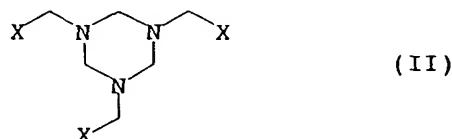
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25. An intermediate obtainable by reacting a hexahydrotriazine derivative of the formula II

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in which X is CN, COOZ, CONR¹R² or CH₂OY,

30 Y is H or a radical which is readily exchangeable for H;

Z is H, an alkali metal, alkaline earth metal, C₁-C₁₈-alkyl or aryl, which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl;

35

R¹ and R² can be identical or different and are H or C₁-C₄-alkyl,

is reacted with a triacyl phosphite of the formula III

40



45 in which the radicals R³, which can be identical or different, are C₁-C₁₈-alkyl or aryl which is unsubstituted or substituted by C₁-C₄-alkyl, NO₂ or OC₁-C₄-alkyl.